

REMARKS

Applicant submits this replacement amendment to comply with the Examiner's request that the text of the cancelled claims 67-77 not be submitted with the reproduced claims. Applicant respectfully requests consideration of this amendment in its entirety.

Applicant acknowledges with appreciation the allowance of claims 28-31 and 39-66. Claims 8 and 32-36 are amended. Claims 67-77 are cancelled without prejudice to their underlying subject matter as non-elected. Applicant acknowledges the restriction of prosecution to claims 1-66, drawn to methods. Concurrently herewith, Applicant submits a replacement Declaration by the inventor under 37 C.F.R. § 1.67(a).

Applicant brings to the Examiner's attention errors in the published version of the application. At every instance in the specification discussing magnetic field, the symbol is printed incorrectly. The correct symbol in the application as filed is: $\bar{\beta}$ (including within absolute value indications). Also, at paragraphs [0027] and [0028], the symbol for electric field is incorrectly printed. The correct symbol in the application as filed is: \bar{E} . Correction of these errors prior to issuance of the patent is requested.

Claims 8 and 32-38 stand rejected under 35 U.S.C. § 112, second paragraph, for failing to particularly point out and distinctly claim the subject matter regarded as the invention. The amendment to these claims overcomes the rejection. Applicant respectfully request that the 35 U.S.C. § 112, second paragraph, rejection of claims 8 and 32-38 be withdrawn.

Claims 1-7, 9-11, and 24-27 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent 6,392,187 (Johnson). Applicant respectfully traverses this rejection.

Claim 1 defines a method of forming a microstructure by micromachining and recites, in part, "providing a contoured substrate" and "generating a stable ion-containing

etching plasma" and "generating a magnetic field . . . adjustable in intensity and direction" and "applying an RF bias power to said substrate, said RF bias power being adjustable in intensity" and "controlling said etching of said substrate by said plasma by adjusting at least one of said magnetic field intensity, magnetic field direction, and RF bias power intensity during said etching." Johnson does not disclose this claimed method.

Johnson does not disclose "providing a contoured substrate." The claimed method uses a plasma to etch an already contoured substrate. Johnson, instead, uses a plasma etch to create a contoured substrate. But, the substrate etched by the methods of Johnson is not contoured prior to plasma etching.

Johnson does not disclose "generating a stable ion-containing etching plasma." Johnson, instead, focuses on destabilizing a plasma so that it either has a density gradient or is non-uniform. The destabilized plasma is the key to the method disclosed and claimed by Johnson in that it is utilized to accelerate predominantly neutral particles to a substrate with the intended result to be to cause less damage during etching. Column 8 to column 11.

Johnson also does not disclose "applying an RF bias power to said substrate, said RF bias power being adjustable in intensity." The RF bias power disclosed by Johnson is not applied to the substrate being etched, but is applied to a volume over that substrate containing the etching plasma. Figures 1 and 4 at 110 and 104. In fact, Johnson teaches away from applying an RF bias power to a substrate, as recited in the claim, specifically where the references states,

while some known systems require an additional RF source for biasing a substrate holder in order to accelerate particles, the particle source of the invention utilizes a density gradient to accelerate particles, thereby allowing the elimination of both (1) and additional RF source and (2) a matching network used to couple the RF source to the substrate holder.

Column 8, lines 8-14 (emphasis added). Thus, Johnson makes clear that applying RF bias

power (as well as the ability to adjust the intensity of that power) is not a part of its disclosed apparatus for plasma etching or method of using that apparatus.

Additionally, Johnson does not disclose “adjusting at least one of [a] magnetic field intensity, magnetic field direction, and RF bias power intensity during . . . etching” to form a microstructure, as recited by claim 1. Johnson discloses only application of one or more magnetic fields and an RF bias during plasma etching, none of which are adjusted in direction or intensity during etching. Thus, the apparatus and method described by Johnson could not function in a way to achieve the claimed method.

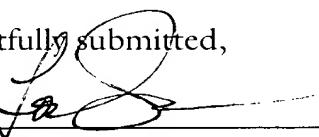
Because Johnson fails to disclose at least the above-discussed recited elements of the method of claim 1, this independent claim and depending claims 2-27 are patentable over the reference. Applicant respectfully requests that the 35 U.S.C. § 102(e) rejection of claims 1-7, 9-11, and 24-27 be withdrawn.

Claims 12-23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Johnson. Applicant respectfully traverses this rejection. Claims 12-23 depend from claim 1, which has already been discussed above as patentable over Johnson. Therefore, each depending claim is likewise patentable over the reference for at least the same reasoning. Additional reasons for the patentability of these depending claims exists as well in limitations thereof not specifically discussed. Applicant respectfully requests that the 35 U.S.C. § 103(a) rejection of claims 12-23 be withdrawn.

In view of the above, each of the presently pending, non-allowed claims (i.e., claims 1-27 and 32-38) in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue.

Dated: June 5, 2003

Respectfully submitted,

By 

Thomas J. D'Amico

Registration No.: 28,371

Ryan H. Flax

Registration No.: 48,141

DICKSTEIN SHAPIRO MORIN &

OSHINSKY LLP

2101 L Street NW

Washington, DC 20037-1526

(202) 785-9700

Attorneys for Applicant

RECEIVED
JUN 09 2003
GROUP 1700